

<b>Topic</b>	<b>Radar sensing of ocean physics</b>
<b>Topic is suitable for</b>	<ul style="list-style-type: none"> <li>• practical works of bachelor students</li> <li>• graduation thesis of bachelor students</li> <li>• practical works of master students</li> <li>• graduation thesis of master students</li> </ul>
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<b>Annotation</b>	There are many radar systems (synthetic aperture radar on satellites, coastal radars etc.) that provide information with different level of complexity (polarimetric and interferometric data) and accuracy (1–100 m resolution). State-of-the-art image processing methods enable to retrieve quantitative information about marine environment: wave and wind field, surface currents, sea ice conditions etc. Moreover, operational monitoring systems in the fields of environmental monitoring and security sector (boarder surveillance, oil spill detection, target/ship detection at sea) are based on radar data. Therefore, there is a strong need to develop scientific algorithms and practical applications for radar data processing and analysing.
<b>Expectation for candidate</b>	Interest in marine physics, knowledge of wave and atmosphere dynamics. Basic knowledge on radar physics and image processing would be helpful. Knowledge on data analysis and statistics. Experience with one of the following computer languages – Matlab, IDL, Python or C++. Prepared for self-learning and independent work.

For example, Figure 1. demonstrates wave and wind field retrieved from high-resolution TerraSAR-X data over the Gulf of Finland.

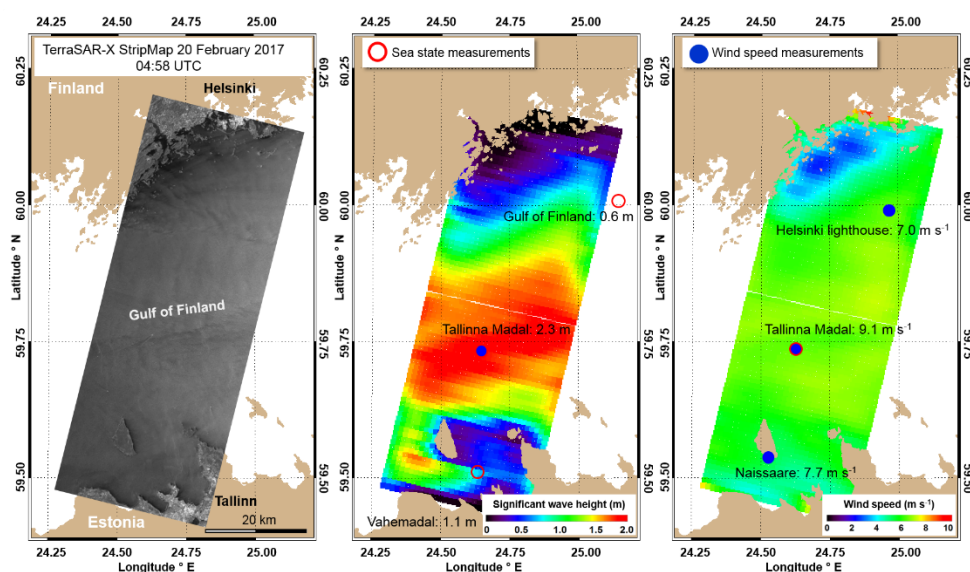


Figure 1. Wave and wind field parameters from high-resolution TerraSAR-X data over the Gulf of Finland.